NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE SPECIFICATION

GRADE STABILIZATION STRUCTURE

(no.)
CODE 410

SCOPE

This specification covers the installation of a grade stabilization structure. Construction shall be in accordance with the plans and these specifications.

INSTALLATION

Site Preparation

Foundation areas shall be cleared of trees, logs, stumps, roots, brush, boulders, sod, and rubbish. If needed to establish vegetation, the topsoil and sod shall be stockpiled and spread on exposed surfaces. Foundation surfaces shall be sloped to no steeper than one horizontal to one vertical (1:1). The foundation area shall be thoroughly scarified before placement of fill material. The surface shall have moisture added or shall be compacted, if necessary, so the first layer of fill material can be compacted and bonded to the foundation.

All required excavations shall be dug to the lines and grades shown on the plans or as staked in the field. If they are suitable, excavated materials shall be used in the permanent fill.

Existing stream channels in the foundation area shall be sloped no steeper than one horizontal to one vertical (1:1) and deepened and widened as necessary to remove all stone, gravel, sand, stumps, roots, and other objectionable material and to accommodate compaction equipment.

Foundation areas shall be kept free of standing water when fill is being placed.

EMBANKMENT

Fill Placement

The material placed in the fill shall be as free as possible of sod, roots, stones over 6 inches in diameter, and other objectionable material.

Selected backfill material shall be placed around structures, pipe conduits, and antiseep collars at about the same rate on all sides to prevent damage from unequal loading.

Placing and spreading of fill material shall be started at the lowest point of the foundation. Fill shall be brought up in horizontal layers of such thickness that adequate compaction can be obtained. The fill shall be constructed in continuous horizontal layers.

The distribution and gradation of materials shall be such that there will be no lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material. If it is necessary to use materials of varying texture and gradation, the more

impervious material shall be placed in the center portion of the embankment. The complete work shall conform to the lines, grades and elevations shown on the drawings or as staked in the field.

Moisture Control

The moisture content of the fill material shall be such that the required compaction can be obtained. Material that is too wet shall be dried to meet this requirement and material that is too dry shall have water added and mixed until it can be compacted.

Compaction

Construction equipment shall be operated over the areas of each layer of fill in a way that will result in adequate compaction. Special equipment shall be used, if needed, to obtain the required compaction.

If a minimum required density is specified on the plans, each layer of fill shall be compacted as necessary to make the density not less than that specified.

Fill adjacent to structures shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping, manually directed power tampers, or plate vibrators. Fill adjacent to concrete structures shall not be compacted until the concrete is strong enough to support the load.

Protective Cover

A protective cover of vegetation shall be established and maintained on all exposed surfaces in accordance with the standard for **Critical Area Planting** (Code 342).

Seedbed preparation, seeding, fertilizing, and mulching shall be as shown on the plans.

Material

All materials, placement, anchoring, proportioning, and protection shall be as shown on the plans.

Reinforced Concrete

For small jobs the concrete mix will be: 1 sack cement (1 cubic foot), 2 cubic feet sand, 3-1/2 cubic feet gravel, and 6 gallons water. For larger jobs, concrete will be proportioned and mixed to produce a 28-day strength of 3,000 pounds per square inch, or greater, if specified on the plans. Concrete should be cured by keeping exposed surfaces wet for a minimum of 7 days or by applying an acceptable curing compound.

Reinforcing steel is to be placed as indicated on the plans and held securely in place during concrete placement. Reinforcing steel shall be free from rust, oil, grease, paint or other deleterious matter.

Subgrades and forms shall be installed to lines and grades shown on the drawings. Forms shall be thoroughly oiled or wetted and cleaned of debris prior to placement of concrete. The forms shall be mortar tight and unyielding as the concrete is placed.

All concrete shall be vibrated or rodded in the forms. Concrete surfaces shall be finished to where no voids, honeycombed areas, rough edges or obstructions exist. Concrete shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation.

The bond area between a floor slab and reinforced concrete wall must be thoroughly roughened and cleaned to insure a good bond.

Construction joints shall be provided as shown in the plans. Joints shall be thoroughly cleaned and laitance removed before a new pour is made. Each joint shall be wetted immediately before the placing of new concrete.

Pipe Installation

The pipe conduit shall be placed on a firm foundation to the lines and grades shown on the drawings. Unless otherwise approved, selected backfill materials shall be placed around the conduit in uniform layers and each layer shall be thoroughly compacted to obtain the equivalent compaction of the adjacent embankment. Caution shall be exercised to prevent pipe damage and uplifting when backfilling.

Foundation and Embankment Drains

Foundation and embankment drains, when required, shall be placed to line and grade as shown on the drawings. Detailed requirements for drain material and any required pipe shall be as shown on the drawings.

CONSTRUCTION OPERATIONS

Construction operations shall be carried out in such a manner and sequence that erosion and air and water pollution will be minimized and held within legal limits. All work will be conducted in a skillful and workmanlike manner.

The completed job shall present a workmanlike appearance.

Appropriate safety measures, such as warning signs and fencing, shall be provided.

SAFETY

Landowners or operators, sponsoring organizations, and contractors shall be liable for damage to utilities and damage resulting from disruption or service caused by construction activities. The Natural Resources Conservation Service makes no representation on the existence or nonexistence of any utilities. Absence of utilities on the drawings is not assurance that no utilities are present at the site.

It is the responsibility of the landowner or operator to determine if there are buried or overhead utilities in the vicinity of the proposed work. They should take proper procedures to insure that the utilities shall not be jeopardized and that equipment operators and others will not be injured during construction operations.